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Abstract

Purpose: To evaluate the ocular surface changes induced by contact lens wear.

Methods: Data of 7 tolerant contact lens wearers, 7 non-tolerant contact lens wearers and 7 healthy subjects were collected. Every patient underwent a thorough ophthalmic examination and tear osmolarity test, conjunctival impression cytology and meibomian lipid sampling. Symptoms, Break-Up Time (BUT), tear osmolarity, conjunctival expression of human leucocyte antigen (HLA) DR and meibomian fatty acid composition were evaluated.

Results: Twenty one subjects (8 men and 13 women) were included (42 eyes). Symptoms reported by tolerant and non-tolerant contact lens wearers were as follows: superficial foreign body sensation (29% vs 21%), burning (14% vs 21%) and ocular dryness (28% vs 78%). No symptoms were reported by healthy subjects. There was no significant difference in tear osmolarity ($p=0.63$) and meibomian fatty acid composition ($p=0.97$) in both groups. Break-up time was significantly lower in tolerant ($p<0.05$) and non-tolerant ($p<0.0001$) contact lens wearers than in healthy subjects. The HLA-DR expression was significantly higher in non-tolerant (50%) contact lens wearers than in healthy subjects (16%) ($p<0.01$).

Conclusions: Contact lens wear is responsible for ocular surface alterations which lead to intolerance. These patterns are very similar to those reported in dry eye symptoms.

Keywords: contact lens • cornea: tears/tear film/dry eye • lipids